INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Frank O'Bannon
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

November 30, 2001

George Bradley, Jr.
Indiana Harbor Coke Company
3210 Watling Street MC 2-990
East Chicago, IN 46312

Re: 089-14241
Significant Modification to
CP 089-9236-00382

Dear George Bradley, Jr.:

Indiana Harbor Coke Company was issued a permit on February 26, 1998 relating to the operation of the Heat Recovery Coal Carbonization (HRCC) unit. A request to allow venting of gases from the vent stack in addition to the main stack and continued operation of the No.4 AC station was received on April 02, 2001. Pursuant to IC13-15-7-1, this permit is hereby modified as follows:

1. List of Equipment (page 2 of 19) is modified as follows:

   (k) two hundred sixty-eight (268) nonrecovery coke ovens, identified as ES201, with a maximum capacity of 5589.0 tons of dry coal per day, heated by recirculating combusted gas, under constant negative pressure, with emissions controlled by one (1) lime spray dryer desulfurization unit and one (1) baghouse, with waste gas emissions exhausting through sixteen (16) vent stacks and one (1) stack, identified as 201,

2. A new operating condition is added on page 8 of 19 as number 12a as follows:

   12a. That pursuant to 326 IAC 6-1-2, particulate matter emissions from coke oven vent stacks, combined with the coke oven main stack shall not discharge to the atmosphere gases which contain particulate matter (filterable and condensable) greater than 0.03 grain per dry standard cubic feet. Compliance with this limit will be determined through a weighted average of the gases exhausted from the vent stack(s) and the main stack.

3. The operation condition 13(g) is modified as follows:

   13(g) as required by 326 IAC 6-1-11.1(e), IHCC shall implement their Fugitive Dust Control Plan, in those areas within the IHCC fence line and roads used primarily by IHCC, such that paved roads, parking lots, unpaved roads, traveled open areas, and storage pile emissions are reduced and comply with applicable rules.

4. The operation condition 16 is deleted from the permit as follows:

   16. Deleted

5. The operation condition 17 is modified as follows:

17. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, the VOC emissions shall be limited as follows:

(a) the HRCC waste gas stack (Stack ID 201) and 16 vent stacks shall be limited to 2.28 lbs/hr, averaged over a 24 hour period,

6. The operation condition 18 is modified as follows:

18. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-2, the lead emissions from the coke oven facility shall be limited as follows:

(a) the HRCC waste gas stack (Stack ID 201) and 16 vent stacks shall be limited to 0.19 lbs/hr, averaged over a 6 hour period,

7. The operation condition 19 is modified as follows:

19. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, particulate matter (PM) (filterable and condensable) emissions from the coal and coke handling equipment and vent stacks shall be limited as follows:

(a) the coal rail car dump (Stack ID 210) and coal transfer towers (Stack IDs 211, 213 and 214) shall each be limited to 0.01 lbs/hr, averaged over a 24 hour period,

(b) the coal pile stacking unit (Stack ID 212) shall be limited to 0.14 lbs/hr, averaged over a 24 hour period,

(c) the coal crusher and screening station (Stack ID 230) shall be limited to 0.36 lbs/hr,

(d) the east and west coal silos (Stack IDs 231 and 232) and the coal weigh belts/diverter gates (Stack IDs 233 and 234) shall each be limited to 0.075 lbs/hr,

(e) the coke transfer towers (Stack IDs 260 through 264, 266 and 267) shall each be limited to 0.075 lbs/hr,

(f) the coke crusher and screening station (Stack ID 265) shall be limited to 1.34 lbs/hr,

(g) the rail car coke loadout station (Stack ID 250) shall be limited to 0.42 lbs/hr,

(h) Each vent stack shall be limited to 11.875 lb/hour (both filterable and condensable), averaged over a 24 hour period, and

(i) Combined PM from the 16 vent stacks shall be limited to 36.1 lb/hour (both filterable and condensable), averaged over a 24 hour period. This is equivalent to venting 19% of the coke oven waste gasses.

8. The operation condition 24 is modified as follows:

24. That pursuant to 326 IAC 2-1-3(i)(8), the NO_x emissions from the main stack (Stack ID 201) and 16 vent stacks shall not exceed 304.7 lbs/hr, averaged over a 24 hour period.

9. A new operating condition is added on page 12 of 19 as number 26a as follows:

26a. Sulfur Dioxide Limit

That pursuant to 326 IAC 2-1-3 (i)(8), the sulfur dioxide emissions from the 16 vent stacks, combined with the sulfur dioxide emissions from the HRCC waste gas main stack (stack ID 201), shall be limited to a twenty four (24) hour average emission rate of 1656 lb/hour.

10. The operation condition 27 is changed as follows:

27. That pursuant to 326 IAC 2-1-3(i)(8), the coke ovens shall recycle the gases emitted during the coking process and utilize it as the only fuel source for the ovens during normal operations. The gases shall not be routed directly to the atmosphere unless they first pass through the common tunnel afterburner. A maximum of 19% of the coke oven waste gases leaving the common tunnel shall be allowed to be vented to the atmosphere on a 24 hour basis and 14% on an annual basis.

11. The operation condition 30 is changed as follows:

30. That pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) compliance stack tests shall be performed for lead, VOC and NO_x emissions from the HRCC waste gas stack (Stack ID 201) and PM emissions from the charging stack (Stack ID 202 or 203), pushing stack (Stack ID 204), coke crusher and screening station (Stack ID 265) and a representative coke oven waste gas vent stack. The tests shall be performed within 60 days after achieving maximum production rate, but no later than 180 days after complete facility start-up, or January 1, 1999 whichever comes first. Complete facility start-up is defined as the date at which all batteries have started. The waste gas vent stack test shall be performed within 60 days after the date of issuance of this modification to the permit.

(a) These tests shall be performed according to 326 IAC 3-2.1 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner. PM limits for the main stack, vent stacks and charging operations (Ids 201, 202 and 203) include both filterable and condensible particulate matter. Therefore, PM testing should be performed according to 40 CFR 60, Appendix A, Method 5 and 40 CFR 51, Appendix M, Method 202.

12. A new sub-condition is added in condition 32 as follows:

32 (i) No.19 & 27 An emission tracking program that quantifies the combined emissions of SO2 and of PM (filterable and condensable) from the coke oven waste gas main stack (stack 201) and the 16 vent stacks shall be maintained. This program shall also track the percentage of waste gas vented. Information calculated by this program shall be made available to Cokenegy.

13. A operation condition 34 is changed as follows:

34. That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, emissions from No.4 AC Station shall be curtailed within 180 days after start-up of the last coke battery (which occurred in 1998), such that the total emissions from boilers 401 through 405 shall be less than the limitation specified in the following table in tons per year:

PM	PM10	SO2	VOC	CO	NOX	H2SO4	Lead
605.8	605.8	3899.2	20.2	202.5	3284	132.6	0.36

The Permittee shall adhere to following requirements for curtailment of operation of No.4 AC station:

(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start-up of the first coke battery,

(b) The two (2) new natural gas-fired turbines shall not commence operation until the 4AC Station emissions are curtailed per this condition above.

(c) After emissions curtailment of No.4 AC Station per this condition above, records of fuel type and usage for boilers 401 through 405 in the No. 4AC Station, records of emissions calculations necessary to document compliance with limits in this condition, and dates for emissions curtailment. These records shall be kept for at least a 36 month period and shall be submitted to IDEM, OAM upon request. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405 when fired on coal or fuel oil, otherwise AP-42 emission factors for natural gas combustion shall be used. Actual PM_{10} emissions from:

(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits or site specific stack test results as the emission factor, and

(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.

Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor or site-specific emission factor as determined by a stack test carried out on a representative boiler with the prior approval from OAQ, IDEM. The operation of No.4 AC station will be subject to any other requirements as specified in State Implementation Plan.

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Gurinder Saini, at (800) 451-6027, press 0 and ask for Gurinder Saini or extension 3-0203, or dial (317) 233-0203.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

GS

cc: File – Lake County
U.S. EPA, Region V
Lake County Health Department
East Chicago Department of Environmental Management
Northwest Regional Office
Air Compliance Section Inspector – Ramesh Tejuja
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for a Significant Modification to a Construction Permit

Source Name:	**Ispat Inland Inc., Indiana Harbor Coke Company, Cokenergy Inc.**
Source Location:	**3210 Watling Street, East Chicago, Indiana 46312**
County:	**Lake**
SIC Code:	**3312**
Construction Permit No.:	**089-9033-00316, 089-9236-00382, 089-9237-00383**
Permit Issuance Date:	**February 26, 1998**
Modification No.:	**089-14245-00316, 089-14241-00382, 089-14243-00383**
Permit Reviewer:	**Gurinder Saini**

On September 21, 2001, the Office of Air Quality (OAQ) had a notice published in the Times, Munster Indiana and The Post Tribune, Merrillville, Indiana, stating that Ispat Inland Inc. (Ispat), Indiana Harbor Coke Company (IHCC) and Cokenergy Inc. (Cokenergy) had applied for a Significant Modification to Construction Permit. The notice also stated that OAQ proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Comments were received from the three Permittees - Ispat, IHCC and Cokenergy. These comments and OAQ responses are listed below. Any changes to the permits are shown with **bold** for language added and ~~strikeout~~ for language deleted.

Cokenergy:
A letter with the following comments was received from Cokenergy Inc. on October 15, 2001. The changes due to these comments to conditions in construction permit 089-9237-00383 are shown below.

Comment 1:
The company name is Cokenergy in place of CokEnergy. Please correct all occurrences of the company name.

Response 1:
OAQ has changed the company name appropriately. All documents (TSD addendum and permit) indicate the correct spellings of company name. No changes will be made to the TSD. The OAQ prefers that the TSD reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

Comment 2:
The permit does not contain an averaging period for PM emissions in the operating condition 14 for the waste gas stack ID 201. In addition Cokenergy has requested a clarification, if the second part of the condition 14 is valid or not?

Response 2:
OAQ, has changed the condition 14 as follows:

14. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, particulate matter (PM) (filterable and condensable) emissions from the HRCC waste gas stack (Stack ID 201) shall be limited to 50.0 lbs/hr**, averaged over a 24 hour period.**

    Compliance with this condition and Operation Condition No. 13 will ensure that the Emission Offset rules, 326 IAC 2-3, will not apply.

The second part of the condition 14 stated above is valid and is in force as shown above.

Comment 3:
In the operating condition 15, the averaging period for SO2 emissions is specified as 24 hour period. The IHCC permit allows a 24 hour and annual period for limiting frequency of venting of exhaust gases from the 16 vent stacks. As the SO2 limit is combined from the main stack ID 201 and 16 vent stack is combined, and short term primary NAAQ standard for SO2 is on 24 hour basis, Cokenergy is requesting to show compliance with the SO2 limit on 24 hour basis.

Response 3:
The OAQ agrees that as the venting is limited on 24 hour basis (19% on a 24 hour basis), the averaging period for the emissions from the main stack 201 and 16 vent stacks should also be based on the same period (24 hour). In case of the SO2 emissions the 3 hour standard is a secondary standard for SO2 concentrations in ambient air quality. The OAQ modeled the SO2 emissions and has found that the secondary standard is not exceeded and modeled concentrations are well below the standard. Therefore, OAQ has changed the condition 15 as follows:

15. That pursuant to 326 IAC 2-1-3(i)(8), the sulfur dioxide emissions from the HRCC waste gas stack (Stack ID 201), combined with the 16 vents shall be limited to a ~~three~~ **24** hour average emission rate of 1656 lb/hour. ~~During three hour periods which include nozzle changes for maintenance or repair or which include switching of FGD units, compliance with the 1656 lb/hour limit shall be determined by using the twenty-four hour average for the day of the nozzle change or FGD switch.~~ This shall satisfy the requirements of 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations).

Comment 4:
Change operating condition 16 to reflect the revised SO2 averaging period in operating condition 15. Also, the name of the company “Indiana Harbor and Coke Company” in condition 16 should be revised to “Indiana Harbor Coke Company”.

Response 4:
The operating condition 16 is changed as follows:

16. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 3-1.1, the Permittee shall install, calibrate, maintain, and operate a continuous emission monitoring systems (CEMS) for measuring SO_2 and O_2 concentrations downstream of the lime spray dryer and opacity at the outlet of the baghouse on stack 201 and shall record the output of the systems. The Permittee shall provide record keeping and reporting pursuant to 326 IAC 3-1.1-3 and 326 IAC 3-1.1-4. ~~In addition to these record keeping requirements, the Permittee shall also note and record those times when the three hour average of emission rate limit of 1656~~

~~lb/hour from the HRCC waste gas stack (Stack ID 201), combined with the 16 vent stacks, is exceeded due to nozzle changes or switching of FGD units.~~ The output from CEMS shall be available to Indiana Harbor ~~and~~ Coke Company for utilization in the emission tracking program that calculates the combined emissions of SO_2.

Comment 5:
The operating condition 20 needs to be revised to reflect the continued operation proposed by Ispat Inland Inc. as revised in their permit under this permit revision. As the three permits share some of the conditions, they should be changed in all three permits.

Response 5:
The operating condition 20 is changed as follows:

~~20. That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, the No. 4 AC Station shall be shutdown prior to the commencement of commercial operation of the HRCC facilities, which will be defined as 180 days after start-up of the last coke battery. The Permittee shall adhere to part (a) of the following requirements in the phased shutdown plan as submitted to IDEM on December 16, 1996:~~

~~(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start-up of the first coke battery,~~

~~(b) Upon start-up of the third coke battery, Inland Steel Company shall not operate the 4AC Station boilers such that actual emissions from the 4AC Station and coke batteries are greater than the following allowable levels in tons per month:~~

~~TSP~~	~~PM_{10}~~	~~SO_2~~	~~Lead~~	~~H_2SO_4~~	~~VOC~~	~~NO_x~~	~~CO~~
~~72.0~~	~~48.3~~	~~991.7~~	~~0.18~~	~~31.3~~	~~3.3~~	~~604.2~~	~~73.5~~

~~(c) Within 180 days after start-up of the last coke battery, all boilers in the 4AC Station shall be permanently shutdown.~~

~~(d) The two (2) new natural gas-fired turbines shall not commence operation until boilers 401 through 405 in the 4AC Station are permanently shutdown.~~

~~(e) During the phased start-up and shutdown, records of fuel type and usage for boilers 401 through 405 in the No. 4AC Station and dates for start ups and shutdowns shall be kept. These records shall be kept for at least a 36 month period. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405. Actual PM_{10} emissions from:~~

~~(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits as the emission factor, and~~

~~(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.~~

~~(f) Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor.~~

20. That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, emissions from No.4 AC Station shall be curtailed within 180 days after start-up of the last coke battery **(which occurred in 1998),** such that the total emissions from boilers 401 through 405 shall be less than the limitation specified in the following table in tons per year:

PM	PM_{10}	SO_2	VOC	CO	NO_X	H_2SO_4	Lead
605.8	605.8	3899.2	20.2	202.5	3284	132.6	0.36

The Permittee shall adhere to following requirements for curtailment of operation of No.4 AC station:

(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start-up of the first coke battery,

(b) The two (2) new natural gas-fired turbines shall not commence operation until the 4AC Station emissions are curtailed per this condition above.

(c) After emissions curtailment of No.4 AC Station per this condition above, records of fuel type and usage for boilers 401 through 405 in the No. 4AC Station, records of emissions calculations necessary to document compliance with limits in this condition, and dates for emissions curtailment. These records shall be kept for at least a 36 month period and shall be submitted to IDEM, OAM upon request. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405 when fired on coal or fuel oil, otherwise AP-42 emission factors for natural gas combustion shall be used. Actual PM_{10} emissions from:

(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits or site specific stack test results as the emission factor, and

(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.

Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor or site-specific emission factor as determined by a stack test carried out on a representative boiler with the prior approval from OAQ, IDEM. The operation of No.4 AC station will be subject to any other requirements as specified in State Implementation Plan.

Comment 6:
The operating condition 8 needs to be revised to reflect proposed change in the rule 326 IAC 2-6 (Emission Statements) with respect to change in the reporting period. As the proposed emission reporting rule will revise the reporting period for emissions on calendar year basis in place December 1 through November 30, the reference to the reporting period should be deleted.

Response 6:
As the proposed rule is not in force at the time of issuance of this permit modification, OAQ will not make this change to the permit.

The OAQ has changed the fugitive dust emissions operating condition 11 (g) in the Ispat permit 089-9033. This condition should also be changed in 089-9237 Cokenergy permit. Therefore, operating condition 11 (g) in the Cokenergy permit is revised as follows:

11(g) as required by 326 IAC 6-1-11.1(e), Cokenergy shall implement their Fugitive Dust Control Plan, **in those areas within the Cokenergy fence line and roads used primarily by Cokenergy,** such that paved roads, parking lots, unpaved roads, traveled open areas, and storage pile emissions are reduced and comply with applicable rules.

The operation condition 14 is deleted from the Ispat permit 089-9033 as no new ancillary equipment is added. This condition as operating condition 13 is deleted from Cokenergy permit

089-9237 also as follows:

~~13. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, the VOC emissions from any new ancillary equipment including, but not limited to, combustion units and storage tanks shall be limited to 0.20 tons per month. The Permittee shall notify and obtain approval from the Office of Air Management of any planned new ancillary equipment associated with the HRCC or gas turbine facilities which will have the potential to emit VOC prior to construction of the equipment. Any new ancillary equipment shall be considered part of the HRCC or gas turbine facilities if they are located in or perform some function for any HRCC or gas turbine facilities and are constructed within one (1) year of the commencement of operation of the HRCC or gas turbine facilities.~~

IHCC:
Letters with the following comments were received from Indiana Harbor Coke Company and Barnes and Thornburg, attorneys for IHCC on September 24, 2001 and October 18, 2001. The changes to the permit conditions in CP 089-9236-00382 in response to these comments are shown below.

Comment 1:
The company has identified that changes to the operating condition 19 as shown in the Technical Support Document for this permit modification were not reflected in the same condition contained as revised in the letter for permit revision 089-14241.

Response 1:
The OAQ has changed the operating condition 19 in the letter 089-14241 as follows:

19. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, particulate matter (PM) emissions from the coal and coke handling equipment and vent stacks shall be limited as follows:

(a) the coal rail car dump (Stack ID 210) and coal transfer towers (Stack IDs 211, 213 and 214) shall each be limited to 0.01 lbs/hr, averaged over a 24 hour period,

(b) the coal pile stacking unit (Stack ID 212) shall be limited to 0.14 lbs/hr, averaged over a 24 hour period,

(c) the coal crusher and screening station (Stack ID 230) shall be limited to 0.36 lbs/hr,

(d) the east and west coal silos (Stack IDs 231 and 232) and the coal weigh belts/diverter gates (Stack IDs 233 and 234) shall each be limited to 0.075 lbs/hr,

(e) the coke transfer towers (Stack IDs 260 through 264, 266 and 267) shall each be limited to 0.075 lbs/hr,

(f) the coke crusher and screening station (Stack ID 265) shall be limited to 1.34 lbs/hr,

(g) the rail car coke loadout station (Stack ID 250) shall be limited to 0.42 lbs/hr,

(h) Each vent stack shall be limited to 11.875 lb/hour **(both filterable and condensable)**, averaged over a 24 hour period, and

(i) Combined PM from the 16 vent stacks shall be limited to 36.1 lb/hour **(both filterable and condensable)**, averaged over a 24 hour period. This is equivalent to venting 19% of the coke oven waste gasses.

Comment 2:
The company has commented that OAQ should continue processing this permit in an expeditious manner. Further IHCC objects to any delay to permit issuance because of any new issues raised during comment period by Cokenergy or Ispat. If there is significant delay in issuance of this permit, IHCC will request that that the OAQ should address those issues in a separate modification.

Response 2:
The OAQ is working in a consistent and timely manner for issuance of these permit modifications. The additional netting issue related to operation of No.4 AC station is also tied to operation of HRCC project. Therefore, it is not possible to separate these issues.

Comment 3:
IHCC has requested that the SO2 limit in their permit for main stack and vent stack should be changed to 24 hour average in place of 3 hour average as requested by Cokenergy. As the conditions in two permits refer to same stacks and same limits, they should have same averaging times. Therefore company has requested to revise the operating condition 26a in the permit.

Response 3:
The OAQ has agreed to change operating condition 26a as follows:

26a. Sulfur Dioxide Limit
That pursuant to 326 IAC 2-1-3 (i)(8), the sulfur dioxide emissions from the 16 vent stacks, combined with the sulfur dioxide emissions from the HRCC waste gas main stack (stack ID 201), shall be limited to a ~~three~~ **twenty four (24)** hour average emission rate of 1656 lb/hour.

Further, due to the continued operation of No.4 AC station, the OAQ has determined that the operating condition 34 in the IHCC construction permit 089-9236-00382 regarding shutdown of No.4 AC station needs to be modified. The revised operating condition 34 is shown below.

34. ~~That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, the No. 4 AC Station shall be shutdown prior to the commencement of commercial operation of the HRCC facilities, which will be defined as 180 days after start up of the last coke battery. The Permittee shall adhere to the start-up record keeping requirement in part (e) of the phased shutdown plan as submitted to IDEM on December 16, 1996:~~

~~(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start up of the first coke battery,~~

~~(b) Upon start-up of the third coke battery, Inland Steel Company shall not operate the 4AC Station boilers such that actual emissions from the 4AC Station and coke batteries are greater than the following allowable levels in tons per month:~~

~~TSP~~	~~PM_{10}~~	~~SO_2~~	~~Lead~~	~~H_2SO_4~~	~~VOC~~	~~NO_x~~	~~CO~~
~~72.0~~	~~48.3~~	~~991.7~~	~~0.18~~	~~31.3~~	~~3.3~~	~~604.2~~	~~73.5~~

~~(c) Within 180 days after start-up of the last coke battery, all boilers in the 4AC Station shall be permanently shutdown.~~

~~(d) The two (2) new natural gas-fired turbines shall not commence operation until boilers 401 through 405 in the 4AC Station are permanently shutdown.~~

~~(e) During the phased start-up and shutdown, records of fuel type and usage for~~

~~boilers 401 through 405 in the No. 4AC Station and dates for start-ups and shutdowns shall be kept. These records shall be kept for at least a 36 month period. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405. Actual PM_{10} emissions from:~~

~~(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits as the emission factor, and~~

~~(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.~~

~~Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor.~~

That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, emissions from No.4 AC Station shall be curtailed within 180 days after start-up of the last coke battery **(which occurred in 1998),** such that the total emissions from boilers 401 through 405 shall be less than the limitation specified in the following table in tons per year:

PM	PM_{10}	SO_2	VOC	CO	NO_X	H_2SO_4	Lead
605.8	605.8	3899.2	20.2	202.5	3284	132.6	0.36

The Permittee shall adhere to following requirements for curtailment of operation of No.4 AC station:

(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start-up of the first coke battery,

(b) The two (2) new natural gas-fired turbines shall not commence operation until the 4AC Station emissions are curtailed per this condition above.

(c) After emissions curtailment of No.4 AC Station per this condition above, records of fuel type and usage for boilers 401 through 405 in the No. 4AC Station, records of emissions calculations necessary to document compliance with limits in this condition, and dates for emissions curtailment. These records shall be kept for at least a 36 month period and shall be submitted to IDEM, OAM upon request. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405 when fired on coal or fuel oil, otherwise AP-42 emission factors for natural gas combustion shall be used. Actual PM_{10} emissions from:

(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits or site specific stack test results as the emission factor, and

(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.

Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor or site-specific emission factor as determined by a stack test carried out on a representative boiler with the prior approval from OAQ, IDEM. The operation of No.4 AC station will be subject to any other requirements as specified in State Implementation Plan.

The OAQ has changed the fugitive dust emissions operating condition 11 (g) in the Ispat permit 089-9033. This condition should also be changed in 089-9236 IHCC permit. Therefore, operating condition 13 (g) in the Cokenergy permit is revised as follows:

13(g) as required by 326 IAC 6-1-11.1(e), IHCC shall implement their Fugitive Dust Control Plan, **in those areas within the IHCC fence line and roads used primarily by IHCC,** such that paved roads, parking lots, unpaved roads, traveled open areas, and storage pile emissions are reduced and comply with applicable rules.

The operation condition 14 is deleted from the Ispat permit 089-9033 as no new ancillary equipment is added. This condition as operating condition 16 is deleted from IHCC permit 089-9236 also as follows:

~~16. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, the VOC emissions from any new ancillary equipment including, but not limited to, combustion units and storage tanks shall be limited to 0.20 tons per month. The Permittee shall notify and obtain approval from the Office of Air Management of any planned new ancillary equipment associated with the HRCC or gas turbine facilities which will have the potential to emit VOC prior to construction of the equipment. Any new ancillary equipment shall be considered part of the HRCC or gas turbine facilities if they are located in or perform some function for any HRCC or gas turbine facilities and are constructed within one (1) year of the commencement of operation of the HRCC or gas turbine facilities.~~

Ispat Inland Inc.

Following comments were received from Ispat on October 9, 2001.

Comment 1:
The emissions of VOC from the continued operation of No.4 AC Station should be 20.2 tons per year in the operating condition 22 on page 2 of the draft letter and in the description on page 2 in the TSD in place of 12.4 tons per year. The netting table and operating condition 22 in the TSD shows the correct number

Response 1:
The OAQ, has agreed to make this change to the table in the operating condition 22 in the letter as follows:

PM	PM10	SO2	VOC	CO	NOX	H2SO4	Lead
605.8	605.8	3899.2	~~12.4~~ **20.2**	202.5	3284	132.6	0.36

The OAQ acknowledges that the description on page 7 of the TSD should be as follows:

	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_X (tpy)	H_2SO_4 (tpy)	Lead (tpy)
Future Potential Emissions	605.8	605.8	3899.2	~~12.4~~ **20.2**	202.5	3284	132.6	0.36

Based on above the net emissions reduction credit available from curtailment of usage of No.4 AC station for the netting of HRCC project is as follows:

Year	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_X (tpy)	H_2SO_4 (tpy)	Lead (tpy)
Past Actual Emissions	1540.8	1342.3	11471.2	26.82	254.45	8037.3	207.9	0.611
Future Potential Emissions	605.8	605.8	3899.2	~~12.4~~ **20.2**	202.5	3284	132.6	0.36
Emission Reduction Credit Available for HRCC	935	736.5	7572	~~14.42~~ **6.8**	51.9	4753.3	75.3	0.25

Comment 2:
The permit issuance date on page 1 of TSD should be changed to December 30, 1996. This is the date the original permit 089-6919-00316 to construct and operate HRCC project was issued.

Response 2:
The OAQ, IDEM will like to clarify as follows:

1. The HRCC project was permitted under CP 089-6919-00316 on December 30, 1996.
2. Thereafter, this permit was amended on February 26, 1998 and split into three construction permits CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316 for three companies namely Ispat, IHCC and Cokenergy.
3. The present modification being carried out for the three amended permits issued in February 1998 is in turn being applied to equipment as permitted in initial permit in December 1996.
4. Therefore, the permit number and permit issuance date on page 1 of TSD should refer to 089-6919-000316, issued on December 30, 1996, in addition to the three permits currently referred.

Comment 3:
The following comment on the netting calculations were made by Ispat:

(a) Ispat has requested to modify the netting calculation table in the draft permit. This request is to allow less curtailment of No.4 AC station usage. In the draft permit for this modification, Ispat is allowed to operate No.4 AC station at a curtailed level of 3,899.2 tons per year of SO2 emissions with 225 feet tall stack. Ispat has requested that in addition Ispat should be allowed to operate No.4 AC station at 8106.6 tons per year of SO2 emissions. Ispat will raise the stack height to 300 feet to meet NAAQS at SO2 emission rate of 8106.6 tons per year. Even though, not explicitly mentioned, it is OAQ, IDEM's understanding that Ispat is claiming additional (4019.7 tons per year) credits for SO2 emissions, based on contemporaneous decreases from shutdown of emission units at this Source, during the 5 year period ending in 1996, when the original permit 089-6919-00316 was issued. Ispat has requested that the permit conditions should provide that the additional 4,207.4 (8,106.6 minus 3,899.2) tons per year of SO2 emissions can be used at the 4 AC station with the stack extension, and used in full or part to offset or net with future emissions from newly constructed or modified facilities through the contemporaneous life of the actual emissions in 1996-97 (baseline emissions year).

(b) Further, Ispat has requested to use only year 1997 actual emissions as baseline for this modification, when conducting the netting analysis rather than average for 1996 and 1997. Ispat has contended that during 1996, it was in the process of switching to coal as primary fuel for No.4 AC station. In 1997, this switch was complete and 1997 emissions were based on coal as primary fuel, which is more representative of normal operation.

(c) Ispat has requested that it should be allowed to carryout upgrades to control equipment in future to comply with the permit conditions (stringent emission limits) and add a non-emitting steam turbine.

Response 3:
The OAQ, IDEM has consulted United States EPA (Region 5) over this issue. The following points detail OAQ and US EPA region 5's joint responses to these comments:

(a) The time elapsed between the initial netting analysis and this modification is substantial. The initial permit was issued over five years ago. Therefore, the argument that the emissions decreases in the period from 1990 to 1995 should be carried over and made available to No.4 AC station does not fit in the NSR policy. Therefore, the netting table will not be revised to consider those decreases.

(b) The use of coal and natural gas both constitutes normal operation for the No.4 AC station. Therefore, the baseline emissions based on 1996-97 annual average are correct and should be used in the netting calculations.

(c) At this stage, no determination can be made if any future (undefined) changes including addition of steam turbine can be made to the No.4 AC station without affecting the utilization at the Source. It is possible that the upgrade to the control equipment causing no net increase in the emissions may be considered as a pollution control project. The net emission increase from the addition of steam turbine will have to be reviewed for PSD modification significance levels. Only when a firm application detailing the modifications to No.4 AC station are presented to OAQ, IDEM, a permit decision can be made in this regard.

No changes are made to the permit documents with respect to this comment.

Further the OAQ, IDEM has made the following change to condition 22 in the Ispat permit:

22. That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, emissions from No.4 AC Station shall be curtailed within 180 days after start-up of the last coke battery **(which occurred in 1998),** such that emissions from boilers 401 through 405 do not exceed the limitation specified in the following table in tons per year:

PM	PM10	SO2	VOC	CO	NOX	H2SO4	Lead
605.8	605.8	3899.2	20.2	202.5	3284	132.6	0.36

The Permittee shall adhere to following requirements for curtailment of operation of No.4 AC station:

(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start-up of the first coke battery,

(b) The two (2) new natural gas-fired turbines shall not commence operation until the 4AC Station emissions are curtailed per this condition above.

(c) After emissions curtailment of No.4 AC Station per this condition above, records of fuel type and usage for boilers 401 through 405 in the No. 4AC Station, records of emissions calculations necessary to document compliance with limits in this condition, and dates emissions curtailment. These records shall be kept for at least a 36 month period and shall be submitted to IDEM, OAM

upon request. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405 when fired on coal or fuel oil, otherwise AP-42 emission factors for natural gas combustion shall be used. Actual PM_{10} emissions from:

(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits or site specific stack test results as the emission factor, and

(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.

Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor or site-specific emission factor as determined by a stack test carried out on a representative boiler with the prior approval from OAQ, IDEM. The operation of No.4 AC station will be subject to any other requirements as specified in State Implementation Plan.

Appendix

Air Quality Analysis

Summary

Cokenergy has applied for a modification of their SO2 emission limits on their vent stacks. The source requests their emission averaging limits be changed from 3-hour to 24-hour basis. Emissions will average no more than 3,570 pounds per hour total from all stacks on a 3-hour basis. No change of emissions would be observed on a 24-hour or annual basis. Air quality modeling was performed for SO2 on a 3-hour basis for 2 scenarios : operation of 4 vent stacks and 9 vent stacks. The results show that the change of limits will not cause a violation of the 3-hour SO2 standard.

Model Description

The Office of Air Management review used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated April 10, 2001 to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W "Guideline on Air Quality Models". The model also utilized the Schulman-Scire algorithm to account for building downwash effects. Stacks that are below the Good Engineering Practice (GEP) formula for stack heights means that wind flow over and around surrounding buildings can influence the dispersion of pollutant coming from the stacks. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. These aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

Meteorological Data

The meteorological data used in the ISCST3 model consisted of surface data taken from the Hammond on-site tower combined with the mixing heights of Peoria, IL for the five year period (1991-1995). The 1991-1995 meteorological data was obtained through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3 format with an updated version of U.S. EPA's PCRAMMET program.

Analysis for the 3-hour SO2 Air Quality Impact

Previous modeling (submitted March 28, 2001) indicated which vents would be the worst-case for a 3-hour scenario with these meteorological data. Using these assumptions, the highest second-highest concentrations modeling all of Lake County SO2 sources, are shown in Table 1 below.

TABLE 1 - Worst Case 3-hour Modeled Concentrations (ug/m3)					
Year	4 Vent Highest 2nd High	9 Vent Highest 2nd High	Monitored Reading	Worst-Case Total	National Ambient Air Quality Standard
1991	909	1015	31	1046	1300
1992	940	975	31	1006	1300
1993	1027	1173	31	1204	1300
1994	906	1208	31	1239	1300
1995	996	996	31	1027	1300

These modeling results in addition to SO2 monitoring values of 31 ug/m3 result in a peak predicted level of 1239 ug/m3, indicating that the 3-hour SO2 standard will be maintained in Lake County.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Significant Modification to a Construction Permit

Source Background and Description

Source Name:	**Ispat Inland Inc., Indiana Harbor Coke Company, CokEnergy Inc.**
Source Location:	**3210 Watling Street, East Chicago, Indiana 46312**
County:	**Lake**
SIC Code:	**3312**
Construction Permit No.:	**089-9033-00316, 089-9236-00316, 089-9237-00316**
Permit Issuance Date:	**February 26, 1998**
Modification No.:	**089-14241-00382**
Permit Reviewer:	**Gurinder Saini**

The Office of Air Quality (OAQ) has reviewed a modification request from Ispat Inland Inc., Indiana Harbor Coke Company and CokEnergy Inc. relating to the operation of the Heat Recovery Coal Carbonization (HRCC) unit, which was permitted under three permits, CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316 issued respectively to the three sources.

Explanation of Modification

Indiana Harbor Coke Company (IHCC) operates the world's first Heat Recovery Coke Carbonization plant at the Ispat Inland Inc. Source in East Chicago, Indiana. The CokEnergy Inc. operates the energy recovery facility that generates electricity from the hot flue gas generated as the by-product from the coke plant. These emission units were permitted initially in the construction permit CP 089-6919-00316 issued on December 30, 1996. This CP was subsequently split into three permits as per ownership for the three individual companies i.e. Ispat Inland Inc., CokEnergy and IHCC issued on February 26, 1998. However, each separate permit still carried the Source ID of Ispat Inland Inc. Presently OAQ has assigned separate source identification numbers (ID nos.) for the three Permittees. Therefore, in this modification request, the three construction permits CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316 which had same source ID's will be assigned their individual source IDs, namely for CokEnergy CP-089-9237-00383 and for IHCC CP-089-9236-00382. The revised complete permit documents issued to these companies will contain the new permit numbers and source IDs. The Ispat Inland Inc.'s permit number will remain unchanged as CP-089-9033-00316.

This modification request is for incorporating the operating modes that were unknown at the time of the permit issuance and have subsequently evolved during the operation of the HRCC plant. These operating conditions were unknown at the time of issuance of these permits, because this was a unique process and was tried out for the very first time. Therefore, there was no background operation information to rely on during the initial review. The original design of the

coke plant intended that all flue gas would pass through the heat recovery steam generators (HRSGs) and scrubbing equipment and exhaust from the main stack except during malfunction and emergency conditions. Actual operations have shown that it is not possible to route all exhaust gases to the main stack. Some of the flue gas has to be vented prior to the HRSGs but downstream of the afterburner tunnel system. This is necessary to maintain the negative draft that is required for the operation of the coke plant.

The permit request will not result in increase in emissions of regulated pollutants from the coke plant owned by IHCC. The original analysis of the particulate matter has been expanded to include condensable particulate matter for the netting calculations. This has resulted in increase in the emission limit for PM and PM-10 emissions from the main stack for coke ovens.

The HRCC project was a minor modification under Emission Offset review, because the emissions from this project were netted by creditable emission decrease at the Ispat Inland Inc. plant. Minor reductions in the emissions from the material handling equipment are also shown on the netting table. After the changes in this modification request HRCC project will maintain as minor modification for Emission Offset review.

The following changes are requested to the three permits:

1. IHCC Permit CP-089-9236-00316

    a) Allow venting of up to 19% on a 24 –hour basis and 14% on an annual basis.
    b) Reallocate PM, SO_2, NOx, VOC and Lead emissions as combine emissions from both the vent and main stacks as opposed to solely from the main stack.
    c) Allow PM (including both filterable and condensible) emissions up to 11.875 lb/hour/individual vent stack on 24-hour basis.
    d) Allow PM (including both filterable and condensible) emissions from venting up to 36.1 lb/hour on a 24-hour basis (which is equivalent to 19% venting).
    e) Allow PM (including both filterable and condensible) emissions from venting up to 116.5 tons/year on an annual basis (which is equivalent to 14% venting).

2. CokEnergy Permit CP-089-9237-00316

    a) Allow PM (including condensible) emission up to 50.0 lb/hour.
    b) Reallocate SO_2 emissions as combined emissions from both the vent and main stacks as opposed to solely from the vent.

3. Ispat Inland Inc. Permit CP-089-9033-00316

    a) Combine VOC emission limitations for two natural gas fired turbines to 4.0 pounds per hour from 2 pounds per hour per turbine.
    b) The PM emissions from the two turbines exhausting to stacks 501 and 502 should be converted to PM_{10} emissions limit, as PM_{10} is the regulated pollutant in the Lake County State Implementation Plan. Also change emission limitation from 3.0 pounds per million cubic feet of fuel used to 7.6 pounds as per revised AP42 emissions. The revised emission factor and the resulting impacts are shown in the netting table and modeling.
    c) The No.4 AC station is not required to be completely shutdown. Only a portion of the actual emissions is needed to “netted” the emission increase due to HRCC furnace. Therefore, the net emission increase by the HRCC modification can be netted out of significant modification review under 326 IAC 2-3 by curtailing emissions from No.4 AC station. The No.4 AC station should be allowed to operate at a curtailed emissions level.
    d) Change the TSP emission to PM emissions (excluding condensible)
    e) Delete the conditions requiring shutting down of the No.4AC station, as it is not

required to shutdown.

f) Further Ispat Inland Inc. had requested the removal of conditions 23 (a)(i), (a)(ii), (b), (c) and (d). During a telephone conversation on May 11, 2001, the Permittee agreed that they would agree to keep these conditions in the permit. Therefore, the request to remove these conditions was not to be processed further. Therefore conditions, 23 (a)(i), (a)(ii), (b), (c) and (d) are not deleted.

Venting Information

The original design of the coke plant intended that all the flue gases would pass through the Heat Recovery Steam Generators (HRSGs) and scrubbing equipment and exhaust out of the main stack, except during malfunctions and emergency situations when vents will opened to release them to atmosphere after the afterburner. The operation of this plant has shown that all gases cannot be routed through the main stack on a continuous basis. Some venting of the flue gases prior to the HRSG's but downstream of the afterburner tunnel system is necessary to maintain the negative draft that is required for the operation of the coke plant.

In the coke production process, the volatile fraction of the coal is driven off in a reducing atmosphere. Coke is the remaining carbon and ash. In the byproduct ovens, the volatile and combustion products are collected downstream of the oven chamber and refined in a chemical plant to produce coke oven gas. The heat recovery ovens are used to oxidize all the coal volatile substances to release heat. The byproduct ovens are kept at a positive pressure to avoid oxidizing recoverable products and overheating the ovens. The heat recovery ovens are kept at a negative pressure, adding ambient air to oxidize all volatile matter and to release heat of combustion within the oven system. The venting is carried out to maintain the negative pressure in the oven under two circumstances, namely during certain peak gas periods and HRSG maintenance.

During peak gassing periods, the induced draft system cannot produce enough suction to maintain the negative pressure in ovens. Therefore, a vent stack is opened and some of the gases are vented. The underlying cause of this venting is the inability of the gas cleaning and induced draft systems to handle peak conditions.

The HRSG maintenance is required because the HRSGs periodically "foul" with ash buildup on the heat exchanger tubes. The buildup insulates tubes from the gas stream, preventing the HRSGs from transferring the heat from the hot flue gases. The affected HRSG is taken offline and manually cleaned. The cause for this venting is the inability of the heat tunnel and other HRSGs to handle the entire volume of gases, when one HRSG must be shutdown for the tube cleaning operation.

<u>Potential Solutions</u>

1. Peak Conditions:
   Venting during peak conditions can be reduced by process modifications, including:

   (a) increasing the time between charging adjacent ovens to flatten out the gassing peak from groups of ovens (staggered charging)
   (b) optimizing production levels and coal blends to produce less gas; and
   (c) improving seals around dampers and access doors to minimize air leakage and excess air to the ovens.

2. HRSG Maintenance:

(a) arranging work schedules so that a crew can clean a HRSG quickly and minimize the time offline;
(b) adding soot blowers to the existing HRSGs in order to keep each unit online as long as possible; and
(c) scheduling HRSG cleaning so that only 1 of the 16 units is offline at a time.

These measures have already been implemented to reduce venting.

Major System Modification

Implementing the following modifications can further reduce the venting problem:

1. increasing the size of the waste heat tunnel;
2. adding redundant HRSGs;
3. installing larger ductwork from the HRSG to the fabric filter;
4. increasing the number of fabric filter modules; and
5. installing additional fan capacity.

Even though theoretically possible, implementing all these modifications will irreparably damage the facility. Construction of these modifications will require shutting down the coke plant. Any such shutdown will cause the coke ovens to fall apart because the silica bricks utilized to fabricate the coke oven break when cooled. Moreover, the oven walls that support the refractory ductwork and HRSG cannot support any additional weight of refractory ductwork or HRSG. Thus implementing these modifications can severely damage the facility.

The replacement of existing HRSGs or installing larger ductwork between the HRSGs and the fabric filter, modifying the fabric filter and installing the additional fan capacity can be carried out without shutting down the plant. However, without increasing the size of the waste heat tunnel, which is a significant cause of venting during peak conditions and maintenance, these modifications would not be of much use. The estimated cost of these modifications, even though irreparable damage to the facility is somehow avoided, is to the tune of $88,000,000.00. The cost of these modifications far outweighs the benefit derived from these modifications because the complete venting would still not be eliminated[1].

Present Operation

Venting has been significantly reduced as a consequence of implementation of various measures at the facility as follows:

1. utilizing coal blends with lower volatile content when compared with coal blends previously used in the production of coke at the coke plant;
2. implementing staggered charging for all batteries;
3. installing oxygen analyzers at each HRSG to monitor excess air;
4. scheduling HRSG cleaning so that only one unit is offline at any one time;
5. operating with the spare fabric filter compartments online (orginally designated to be offline during maintenance) while running both the main and spare fans at the same time;
6. upgrading the seals around all dampers and access doors; and
7. adding soot blowers to all HRSGs at a cost of $7,700,000.

[1] It is unlikely that these modifications will completely eliminate venting. For example, HRSG cleaning and inspections will still be required.

These modifications have resulted in significant reduction in the venting requirements since the startup of the plant. Under normal operation, no more than 19% of the waste flue gases are vented on a 24 hour basis. No more than 14% of the waste flue gases are vented annually. Because the venting cannot be reduced further by reasonable means, the three companies have requested for a modification to the permit.

Description of Continued operation of No.4 AC station (re-evaluation of the netting calculation for this project)

The Ispat Inland Inc. Plant is located in a severe non-attainment area in Lake County. Therefore, emission increases of VOC and NOx above the significance level, due to addition of new or modified emission units are subject to requirements of 326 IAC 2-3 (Emission Offset).

As previously stated the HRCC project was first permitted in CP 089-6919-00316. This emission unit had potential to emit above the de-minims level for VOC and NOx pollutants. Therefore, as per the requirements of 326 IAC 2-3, the source was required to perform net emission change for contemporaneous five year period. In addition, source opted to shut down the No.4 AC station so that emissions decrease from shutting down this unit will provide additional emission credits. This will result in emission increase below the significant level for major modification under 326 IAC 2-3 for this modification.

This CP was subsequently split and modified into three permits for the three individual companies i.e. Ispat Inland Inc., CokEnergy and IHCC issued on February 26, 1998 as CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316. The net emission change table in the construction permit CP – 089-6919-00316 for HRCC project was revised during this permit split and modification to reflect the up to date information. This table is shown on the next page. The actual emissions for No.4 AC station in this table were based on average emissions from this unit for the calendar years 1994 and 1995. These actual emissions are shown in the table below:

Actual Emission from No.4 AC station (1994-1995 average)

PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_X (tpy)	H_2SO_4 (tpy)	Lead (tpy)
395.58	265.04	7842.57	16.3	172.76	5783.7	3.77 E -01	88.62

As a reference, netting table as contained in the CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316 before this modification

Facilities	TSP/PM	PM_{10}	SO_2	VOC	CO	NO_x	H_2SO_4	Lead
Coal Thaw Shed/Rail Car Dump	1.36	1.74	0.06	0.79	4.32	59.4	--	--
Coal Transfer Tower No.1	0.06	0.02						
Coal Piles Stacking Unit	0.06	0.02						
Coal Storage Piles	3.04	1.52						
Coal Crusher and Screening Unit	1.58	1.58						
Active Coal Pile Storage	0.63	0.22						
Coal Transfer Tower No. 2	0.06	0.02						
Coal Transfer Tower No. 3	0.06	0.02						
East and West Coal Silos	0.66	0.66						
Coal Weigh Belts/Diverter Gates	0.66	0.66						
Coke Transfer Tower No. 1	0.99	0.99						
Coke Transfer Tower No. 2	0.66	0.66						
Run of Oven Coke Pile	0.11	0.06						
Coke Crusher/Screening Station	5.87	5.87						
Coke Transfer Tower No. 3	0.66	0.66						
Rail Car Coke Loading	0.93	0.33						
Coke Transfer Tower No. 4	0.33	0.33						
Existing Transfer Point	0.40	0.40						
Lime Storage Silos	0.05	0.02						
FGD Product Storage Silos	0.11	0.04						
Charging	8.25	8.25	6.88	0.03	94.0	3.30	0.077	0.001
Coke Ovens	181.7	181.7	7,255.8	17.8	288.3	1,334.6	82.0	0.835
Pushing	29.3	29.3	8.59	0.08	51.4	4.6	0.07	0.003
Quenching	315.8	30.9	5.4	1.0	--	2.0	0.06	--
Natural Gas-Fired Turbines	32.2	32.2	6.4	17.5	273.8	1095.0	--	--
Miscellaneous Combustion	14.1	14.1	295.3	2.4	52.6	477.4	--	--
Increases from Modification	599.6	312.3	7578.4	39.6	764.4	2976.3	82.2	0.84
Decreases from 4AC Station	-265	-265	-7842.6	-16.3	-172.8	-5783.7	-88.62	-0.38
Net Project Emissions	334.6	47.3	-264.2	23.3	591.6	-2807.4	-6.4	0.46
Contemporaneous Increases								
12" & 14" Mill Shotblaster	3.6	3.6		--	--			
PCI Facilities	10.7	10.7		0.7	9.0			
EAF Shop Ladle Met Rev	0.6	0.6		--	13.5			
No. 1 Normal Preht Replm	0.1	0.1		0.1	0.4			
Normalizer-New Anneal FCE	0.2	0.2		0.4	2.4			
PCI Upgrade	0.3	0.3		--	--			
5 Galv Rad Tube FCE Repl	0.2	0.2		0.4	3.1			
Contemporaneous Decreases								
No. 4 BOF Teeming	-42.3	-18.1			--			
Mold Foundry	-12.1	-6.4			--			
Pugh Ladles & Pig Contro	-55.3	-33.8			--			
EAF Shop 1 FCE Oper	-104.4	-75.0			--			
EAF Shop 2 FCE Oper	--	--			-141.0			
No. 11 Coke Battery	-377.5	--			-134.2			
No. 6, 7, 9, 10 Coke Batteries	--	--			-202.8			
No. 3 AC Station	-37.5	-35.4			-61.7			
76" Hot Strip Mill	-1.4	-1.4			-19.1			
100" Plate Mill	-4.7	-4.1			-7.0			
No. 8 Coke Battery	--	--			-52.0			
80" H/S-2 Pushers	--	--			-10.4			
No. 4 Slabber	-1.2	-1.2			-10.2			
No. 4 Slabber Scarfer	-9.2	-9.2			-0.4			
Net Contemporaneous Emissions	-629.9	-168.9	--	1.6	-610.4	--	--	--
"Net Emissions Increase"	-295.3	-121.6	-264.2	24.9	-18.8	-2807.4	-6.4	0.46
PSD or Offset Significant Level	25	15	40	25	100	100	7	0.6

The source was allowed to continue the operation of No.4 AC station as part of the CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316 and shut it down prior to the commencement of commercial operation of the HRCC facilities. This was defined as 180 days after start-up of the last coke battery.

In the current request for modification, Ispat Inland Inc. has presented the emission statements for No.4AC station for actual emissions for calendar years 1996 and 1997, which are as follows:

Year	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_X (tpy)	H_2SO_4 (tpy)	Lead (tpy)
1996	1430.4	1244.1	10819.6	25.77	250.2	7556.8	192.2	0.565
1997	1651.2	1440.5	12122.8	27.86	258.7	8517.8	223.6	0.657
Actual Emissions (average of above two rows)	1540.8	1342.3	11471.2	26.82	254.45	8037.3	207.9	0.611

The Permittee has requested that since the actual VOC emissions from the No.4 AC station are more than 16.3 tons per year as used in the previous netting table, the No.4 AC station should be allowed to operate with limitation of annual VOC emissions instead of complete shutdown. This limitation is derived based on following:

The Permittee has proposed to use the boiler 401 through 405. The future potential emission from the curtailed continued operation of No.4 AC station:

	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_X (tpy)	H_2SO_4 (tpy)	Lead (tpy)
Future Potential Emissions	605.8	605.8	3899.2	12.4	202.5	3284	132.6	0.36

Based on above the net emissions reduction credit available from curtailment of usage of No.4 AC station for the netting of HRCC project is as follows:

Year	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_X (tpy)	H_2SO_4 (tpy)	Lead (tpy)
Past Actual Emissions	1540.8	1342.3	11471.2	26.82	254.45	8037.3	207.9	0.611
Future Potential Emissions	605.8	605.8	3899.2	12.4	202.5	3284	132.6	0.36
Emission Reduction Credit Available for HRCC	935	736.5	7572	14.42	51.9	4753.3	75.3	0.25

The revised netting table for HRCC modification in CP-089-9033-00316, CP-089-9236-00316, & CP-089-9237-00316 after this modification

Facilities	NOTES	PM	PM10	SO2	VOC	CO	NOx	H2SO4	Lead
Coal Thaw Shed/Rail Car Dump		0.4	0.36	0.03	0.25	3.79	4.51		
Coal Transfer Tower No. 1		0.06	0.02						
Coal Piles Stacking Unit		0.63	0.22						
Coal Storage Piles		3.04	1.52						
Coal Crusher and Screening Unit		1.63	0.82						
Coal Bin/Emergency Pile		0.15	0.15						
Coal Transfer Tower No. 2		0.06	0.02						
Coal Transfer Tower No. 3		0.06	0.02						
East and West Coal Silos		0.66	0.66						
Coal Weigh Belts and Diverter Gates		0.66	0.66						
Coke Conveying		1	0.5						
Coke Transfer Tower No. 1		0.99	0.99						
Coke Transfer Tower No. 2		0.66	0.66						
Run of Oven Coke Pile		1.58	0.79						
Fines Coke Pile		0.11	0.06						
Coke Crusher/Screening Station		5.87	5.87						
Coke Transfer Tower No. 3		0.66	0.66						
Rail Car Coke Loading		0.93	0.33						
Coke Transfer Tower No. 4		0.33	0.33						
Belt 5A Transfer Point 263A		0.33	0.33						
Belt 5A Transfer Point 264A		0.33	0.33						
Existing Transfer Point		0.4	0.4						
Lime Storage Silos		0.05	0.02						
FGD Product Storage Silos		0.11	0.04						
Charging		8.25	8.25	6.88	0.033	93.7	3.3	0.077	0.001
Coke Ovens		335.5	335.5	7253.1	10.0	288.3	1334.6	82	0.835
Pushing		29.35	29.35	8.59	0.08	71.32	4.58	0.07	0.003
Quenching		315.76	30.95	5.4	1.02		2	0.06	
Natural Gas Fired Turbines		81.6	81.6	6.4	17.5	273.8	1095		
Miscellaneous Combustion		0	0	0	0	0	0	0	0
Increases From Modification		791.2	501.4	7280.4	28.8	730.9	2444.0	82.2	0.84
Actual Decreases Available from No. 4 AC		-1540.8	-1342.3	-11471.2	-26.8	-254.4	-8037.3	-207.9	-0.61
Continued No. 4 AC Operation		605.8	605.8	3899.2	20.2	202.5	3284	132.6	0.36
Net Project Emissions		-143.8	-235.1	-291.6	22.3	679.0	-2313.3	6.9	0.59
Contemporaneous Increases (Permit)									
12" & 14" Mill Shotblaster		3.6	3.6						
PCI Facilities		10.7	10.7		0.7	9			
EAF Shop Ladle Metallurgy Revision		0.6	0.6			13.5			
No. 1 Normalizer Preheat Replm		0.1	0.1		0.1	0.4			
Normalizer - New Anneal FCE		0.2	0.2		0.4	2.4			
PCI Upgrade		0.3	0.3						
No. 5 Galv Radiant Tube FCE Repl		0.2	0.2		0.4	3.1			
Contemporaneous Deceases (Permit)									
No. 4 BOF Teeming		-42.3	-18.1						
Mold Foundry		-12.1	-6.4						
Pugh Ladles & Pig Control		-55.3	-33.8						
EAF Shop 1 FCE Oper		-104.4	-75						
EAF Shop 2 FCE Oper						-141			
No. 11 Coke Battery		-377.5				-134.2			
No. 6,7,9,10 Coke Batteries						-202.8			
No. 3 AC Station		-37.5	-35.4			-61.7			
76" Hot Strip Mill		-1.4	-1.4			-19.1			
100" Plate Mill		-4.7	-4.1			-7			
No. 8 Coke Battery						-52			
80" H/S - 2 Pushers						-10.4			
No. 4 Slabber		-1.2	-1.2			-10.2			
No. 4 Slabber Scarfer		-9.2	-9.2			-0.4			
Net Contemporaneous Emissions		-629.9	-168.9		1.6	-610.4			
"Net Emissions Increase"		-773.7	-404.0	-291.6	23.9	68.6	-3969.3	6.9	0.59
PSD or Offset Significant Level		25	15	40	25	100	25	7	0.60

Therefore, after the modification to install HRCC project and also allowing the curtailed operation of No.4 AC station the following emission credits are available to be banked by Ispat Inland Inc. for use in future as follows:

	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	NOx (tpy)
Emission Credit available from curtailment of operation of No.4 AC station	143.8	235.1	291.6	2313.3
Credits transferred to Primary Energy in the letter dated March 26, 2001		225		
Emission Credit to be Banked for Future Use After the transfer of PM10 emissions to Primary Energy	143.8	10.1	291.6	2313.3

Justification for the Modification

The Construction Permit is being modified through a Significant modification because an emission limitation in the original permit is relaxed. This modification is being performed pursuant to IC13-15-7-1.

The New Source Review Workshop Manual (Draft) by US EPA on page A.54 describes the emission credits from the shutdown of facilities as "The reduction credit would be based on the last 2 years of actual data prior to retirement. As with all reductions, to be creditable the retirement of the units must be made federally-enforceable prior to construction of the modification to and start-up of the source".

Further in an undated letter from Kathleen Henry, Chief Permits and Technical Assessment Branch of Region III of US EPA to Stevens Terry of RR Donnelley Printing Company, the emission reduction from shutdown of facilities is described as follows:

"In determining the creditable emissions reductions from the shutdown sources…, actual emissions just prior to either a physical or operational change should be based on the lower of the actual or allowable emissions levels. Assuming the actual are lower, the reduction credit would be based on the last 2 years of actual data prior to the retirement of these units provided that this time period is representative of normal source operation."

Based on above guidance, the source has provided the last two years actual emissions for the No.4AC station to be used in the netting calculation for the HRCC project. Relying on this guidance OAQ, IDEM has agreed to make this change.

This modification involves relaxing emission limits in an issued permit and also permitting venting which has Potential to Emit above the significant threshold. Therefore, this modification will be

subject to public notice and 30 day public comment period.

Permit Changes

The following permit conditions are modified as follows (language deleted is shown in ~~strikeout~~ and added is shown in **bold**):

IHCC Permit CP-089-9236-00316

1. List of Equipment (page 2 of 19) is to be modified as follows:

   (k) two hundred sixty-eight (268) nonrecovery coke ovens, identified as ES201, with a maximum capacity of 5589.0 tons of dry coal per day, heated by recirculating combusted gas, under constant negative pressure, with emissions controlled by one (1) lime spray dryer desulfurization unit and one (1) baghouse, with waste gas emissions exhausting through **sixteen (16) vent stacks and** one (1) stack, identified as 201,

2. A new operating condition is added on page 8 of 19 as number 12a as follows:

   12a. That pursuant to 326 IAC 6-1-2, particulate matter emissions from coke oven vent stacks, combined with the coke oven main stack shall not discharge to the atmosphere gases which contain particulate matter (filterable and condensable) greater than 0.03 grain per dry standard cubic feet. Compliance with this limit will be determined through a weighted average of the gases exhausted from the vent stack(s) and the main stack.

3. Add reference to the vent stacks for VOC emissions limitation for HRCC waste gases in condition 17 as follows:

   17. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, the VOC emissions shall be limited as follows:

      (a) the HRCC waste gas stack (Stack ID 201) **and 16 vent stacks** shall be limited to ~~4.06~~ **2.28** lbs/hr, averaged over a 24 hour period,

4. Add reference to the vent stacks for Lead emissions limitation for HRCC waste gases in condition 18 as follows:

   18. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-2, the lead emissions from the coke oven facility shall be limited as follows:

      (a) the HRCC waste gas stack (Stack ID 201) **and 16 vent stacks** shall be limited to 0.19 lbs/hr, averaged over a ~~24~~ **6** hour period,

5. Add reference to the vent stacks for PM and visible emissions limitation for HRCC waste gases in condition 19 as follows:

   19. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, particulate matter (PM) emissions from the coal and coke handling equipment **and vent stacks** shall be limited as follows:

      (a) the coal rail car dump (Stack ID 210) and coal transfer towers (Stack IDs 211, 213 and 214) shall each be limited to 0.01 lbs/hr, averaged over a 24 hour period,

(b) the coal pile stacking unit (Stack ID 212) shall be limited to 0.14 lbs/hr, averaged over a 24 hour period,

(c) the coal crusher and screening station (Stack ID 230) shall be limited to 0.36 lbs/hr,

(d) the east and west coal silos (Stack IDs 231 and 232) and the coal weigh belts/diverter gates (Stack IDs 233 and 234) shall each be limited to 0.075 lbs/hr,

(e) the coke transfer towers (Stack IDs 260 through 264, 266 and 267) shall each be limited to 0.075 lbs/hr,

(f) the coke crusher and screening station (Stack ID 265) shall be limited to 1.34 lbs/hr,

(g) the rail car coke loadout station (Stack ID 250) shall be limited to 0.42 lbs/hr, ~~and~~

(h) Each vent stack shall be limited to 11.875 lb/hour (both filterable and condensable), averaged over a 24 hour period, and

(i) Combined PM from the 16 vent stacks shall be limited to 36.1 lb/hour (both filterable and condensable), averaged over a 24 hour period. This is equivalent to venting 19% of the coke oven waste gasses.

6. Add reference to the vent stacks for NOx emissions limitation for HRCC waste gases in condition 24 as follows:

24. That pursuant to 326 IAC 2-1-3(i)(8), the NO_x emissions from the main stack (Stack ID 201) **and 16 vent stacks** shall not exceed 304.7 lbs/hr, averaged over a 24 hour period.

7. A new operating condition is added on page 12 of 19 as number 26a as follows:

26a. Sulfur Dioxide Limit
That pursuant to 326 IAC 2-1-3 (i)(8), the sulfur dioxide emissions from the 16 vent stacks, combined with the sulfur dioxide emissions from the HRCC waste gas main stack (stack ID 201), shall be limited to a three hour average emission rate of 1656 lb/hour.

8. Operation condition 27 is changed as follows:

27. That pursuant to 326 IAC 2-1-3(i)(8), the coke ovens shall recycle the gases emitted during the coking process and utilize it as the only fuel source for the ovens during normal operations. The gases shall not be routed directly to the atmosphere **unless they first pass through the common tunnel afterburner. A maximum of 19% of the coke oven waste gases leaving the common tunnel shall be allowed to be vented to the atmosphere on a 24 hour basis and 14% on an annual basis**.

9. Operation condition 30 is changed as follows:

30. That pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) compliance stack tests shall be performed for lead, VOC and NO_x emissions from the HRCC waste gas stack (Stack ID 201) and PM emissions from the charging stack (Stack ID 202 or 203), pushing stack (Stack ID 204), ~~coal crusher and screening station (Stack ID 230), and~~ coke crusher and screening station (Stack ID 265) **and a representative coke oven waste gas vent stack**. The tests shall be performed within 60 days after achieving maximum production rate, but no later than 180 days after complete facility start-up, or January 1, 1999 whichever comes first. Complete facility start-up is defined as the date at which all batteries have started. **The waste gas vent stack test shall be performed within 60 days after the date of issuance of this modification to the permit.**

    (a) These tests shall be performed according to 326 IAC 3-2.1 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner. PM limits **for the main stack, vent stacks and charging operations (Ids 201, 202 and 203)** include both filterable and condensible particulate matter. Therefore, PM testing should be performed according to 40 CFR 60, Appendix A, Method 5 and 40 CFR 51, Appendix M, Method 202.

10. A new item is added in condition 32 as follows:

32 (i) No.19 & 27 **An emission tracking program that quantifies the combined emissions of SO2 and of PM (filterable and condensable) from the coke oven waste gas main stack (stack 201) and the 16 vent stacks shall be maintained. This program shall also track the percentage of waste gas vented. Information calculated by this program shall be made available to Cokenegy.**

Cokenergy CP-089-9236-00316

1. Fugitive dust emissions condition is changed as follows:

    11(g) as required by 326 IAC 6-1-11.1(e), ~~Inland Steel Company~~ **CokEnergy** shall ~~append and~~ implement their Fugitive Dust Control Plan, such that paved roads, parking lots, unpaved roads, traveled open areas, and storage pile emissions are reduced and comply with applicable rules.

2. Operating condition 14 is changed as follows:

    14. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, particulate matter (PM) **(filterable and condensable)** emissions from the HRCC waste gas stack (Stack ID 201) shall be limited to ~~41.5~~ **50.0** lbs/hr~~, which is equivalent to 0.008 gr/dscf~~.

3. Operating condition 15 is changed as follows:

    15. That pursuant to 326 IAC 2-1-3(i)(8), the sulfur dioxide emissions from the HRCC waste gas stack (Stack ID 201)**, combined with the 16 vents** shall be limited to a three hour average **emission rate of 1656 lb/hour.** ~~of 275 ppm corrected to 8% O_2, at a maximum design flowrate of 605,090 scfm.~~ During three hour periods which include nozzle changes for maintenance or repair or which include switching of FGD units, compliance with the **1656 lb/hour** ~~275 ppm~~ limit shall be determined by using the twenty-four hour average for the day of the nozzle change or FGD switch. This shall satisfy the requirements of 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations).

4. Operating condition 16 is changed as follows:

16. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 3-1.1, the Permittee shall install, calibrate, maintain, and operate a continuous emission monitoring systems (CEMS) for measuring SO_2 and O_2 concentrations downstream of the lime spray dryer and opacity at the outlet of the baghouse on stack 201 and shall record the output of the systems. The Permittee shall provide record keeping and reporting pursuant to 326 IAC 3-1.1-3 and 326 IAC 3-1.1-4. In addition to these record keeping requirements, the Permittee shall also note and record those times when the three hour average of ~~275 ppm limit~~ **emission rate limit of 1656 lb/hour from the HRCC waste gas stack (Stack ID 201), combined with the 16 vent stacks,** is exceeded due to nozzle changes or switching of FGD units. **The output from CEMS shall be available to Indiana Harbor and Coke Company for utilization in the emission tracking program that calculates the combined emissions of SO_2.**

Ispat Inland Inc. Permit CP-089-9033-00316

1. Name change: The name of the source has been changed from Inland Steel Company to Ispat Inland Inc.

The name of the source has been changed in the permit

2. The operation condition 11 (g) is changed as follows:

11(g) as required by 326 IAC 6-1-11.1(e), Inland Steel Company shall append and implement their Fugitive Dust Control Plan, **in those areas under Ispat Inland Inc.'s control, excluding the area within the IHCC and CokEnergy fence line and roads used primarily by IHCC and CokEnergy,** such that paved roads, parking lots, unpaved roads, traveled open areas, and storage pile emissions are reduced and comply with applicable rules.

3. The operation condition 13 is modified as follows:

13. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, the VOC emissions from the natural gas-fired turbines stacks (Stack IDs 501 and 502) shall ~~each~~ be limited to ~~2.0~~ **4.0** pounds per hour.

4. The operation condition 14 is deleted as no new ancillary equipment is added as follows:

~~14. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, the VOC emissions from any new ancillary equipment including, but not limited to, combustion units and storage tanks shall be limited to 0.20 tons per month. The Permittee shall notify and obtain approval from the Office of Air Management of any planned new ancillary equipment associated with the HRCC or gas turbine facilities which will have the potential to emit VOC prior to construction of the equipment. Any new ancillary equipment shall be considered part of the HRCC or gas turbine facilities if they are located in or perform some function for any HRCC or gas turbine facilities and are constructed within one (1) year of the commencement of operation of the HRCC or gas turbine facilities.~~

5. As Lake County SIP is now based on PM_{10}, therefore, the limit in condition 15

should be changed to reflect the AP-42 emission factor of 7.6 pounds per million cubic feet including condensible emissions. This condition is changed as follows:

15. That pursuant to 326 IAC 2-1-3(i)(8) and 326 IAC 2-3, particulate matter **less than 10 microns size** (PM_{10}) emissions from the natural gas-fired turbines (Stack IDs 501 and 502) shall each be limited to ~~3.0~~ **7.6** pounds per million cubic feet of fuel used. Compliance with this condition will satisfy the requirements of 326 IAC 6-1-2.

6. Permittee has requested that the operating condition 20 should be deleted. This request is based on the fact that established and conservative AP-42 emission factors were used to estimate emissions from the Natural Gas fired turbines. As US EPA has already tested these factors on identical units, Ispat Inland Inc. should not be required to stack test again. Ispat Inland Inc. should monitor fuel usage to assure that the permitted firing rates are not exceeded and the fuel usage should be used to determine emissions based on the conservative EPA emission factors.

   The OAQ, IDEM has decided ***not to*** delete the operating permit condition 20. The compliance stack test needs to be carried out. Therefore, this condition is unchanged.

7. Ispat Inland Inc. is no longer required to shut down the No.4 AC station but limit the operation of boiler 401 through 405 so that the emissions stays below the limits shown above. Therefore, condition 22 of the permit is modified as follows:

   22. That pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-2, and 326 IAC 2-3, ~~the No. 4 AC Station shall be shutdown prior to the commencement of commercial operation of the HRCC facilities, which will be defined as 180 days after start-up of the last battery~~. ~~The Permittee shall adhere to parts (b) through (e) of the following requirements in the phased shutdown plan as submitted to IDEM on December 16, 1996:~~ **emissions from No.4 AC Station shall be curtailed within 180 days after start-up of the last coke battery such that the total emissions from boilers 401 through 405 shall be less than the limitation specified in the following table in tons per year:**

PM	PM_{10}	SO_2	VOC	CO	NO_X	H_2SO_4	Lead
605.8	605.8	3899.2	20.2	202.5	3284	132.6	0.36

The Permittee shall adhere to following requirements for curtailment of operation of No.4 AC station:

(a) The lime spray dryer and baghouse associated with the waste gas stack (201) shall begin operation within 30 days after start-up of the first coke battery,

~~(b) Upon start-up of the third coke battery, Inland Steel Company shall not operate the 4AC Station boilers such that actual emissions from the 4AC Station and coke batteries are greater than the following allowable levels in tons per month:~~

~~TSP~~	~~PM_{10}~~	~~SO_2~~	~~Lead~~	~~H_2SO_4~~	~~VOC~~	~~NO_x~~	~~CO~~
~~72.0~~	~~48.3~~	~~991.7~~	~~0.18~~	~~31.3~~	~~3.3~~	~~604.2~~	~~73.5~~

~~(c) Within 180 days after start-up of the last coke battery, all boilers in the 4AC Station shall be permanently shutdown.~~

(**b**~~d~~) The two (2) new natural gas-fired turbines shall not commence operation until ~~boilers 401 through 405 in~~ the 4AC Station ~~are permanently shutdown~~ **emissions are curtailed per this condition above**.

(**c**~~e~~) ~~During the phased start-up and shutdown,~~ **After emissions curtailment of No.4 AC Station per this condition above,** records of fuel type and usage for boilers 401 through 405 in the No. 4AC Station, records of emissions calculations necessary to document compliance with **limits in this condition** ~~part (b)~~, and dates ~~for start-ups and shutdowns shall be kept~~ **emissions curtailment**. These records shall be kept for at least a 36 month period and shall be submitted to IDEM, OAM upon request. Sulfur dioxide actual emissions shall be calculated using CEM output records for boilers 401 through 405 **when fired on coal or fuel oil, otherwise AP-42 emission factors for natural gas combustion shall be used**. Actual PM_{10} emissions from:

(i) coal or mixed gas combustion shall be calculated using PM_{10} SIP limits **or site specific stack test results** as the emission factor, and

(ii) natural gas combustion shall be calculated using AP-42 PM_{10} emission factor for natural gas combustion.

Actual emissions for all other pollutants shall be calculated using corresponding AP-42 emission factor **or site-specific emission factor as determined by a stack test carried out on a representative boiler with the prior approval from OAQ, IDEM. The operation of No.4 AC station will be subject to any other requirements as specified in State Implementation Plan.**

Recommendation

The staff recommends to the Commissioner that the significant modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the modification request submitted by the applicant.

An application for the purposes of this review was received on April 02, 2001.

Conclusion

This permit modification shall be subject to the conditions of the attached Modified Construction Permit CP089-14245-00316.

Indiana Department of Environmental Management
Office of Air Quality

Appendix A to the Technical Support Document (TSD) for a Significant Modification to a Construction Permit

Source Background and Description

Source Name:	**Ispat Inland Inc., Indiana Harbor Coke Company, CokEnergy Inc.**
Source Location:	**3210 Watling Street, East Chicago, Indiana 46312**
County:	**Lake**
SIC Code:	**3312**
Construction Permit No.:	**089-9033-00316, 089-9236-00316, 089-9237-00316**
Permit Issuance Date:	**February 26, 1998**
Modification No.:	**089-14245-00316**

Air Quality Modeling Analysis

Indiana Harbor Coke Company, Cokenergy and Ispat Inland have requested a modification of their construction permits (CP-089-9237-00316,089-9236-00316 and 089-9033-00316). The project comprises of a Heat Recovery Coal Carbonization Facility. This site in Lake County is designated nonattainment for Ozone and portions of the county are nonattainment for PM10 and SO2.

The air quality impact analysis will accomplish the following objectives:

A. Establish which pollutants require an air quality analysis and provide analysis of stack height with respect to Good Engineering Practice (GEP)

B. Demonstrate that the source will not cause a violation of the National Ambient Air Quality Standards (NAAQS) or Prevention of Significant Deterioration (PSD) increment

C. Perform an analysis of any air toxic compound for the health risk factor on the general population.

Ispat Energy prepared their own permit application. This revision was received by the Office of Air Quality (OAQ) on March 28, 2001. This document provides the Air Quality Modeling Section's review of the application.

Executive Summary

Ispat Energy has asked to construct a Heat Recovery Coal Carbonization Facility at its East Chicago facility. Portions of Lake County are non-attainment for PM10 and SO2. Lake County is classified as severe non-attainment for ozone. Lake County is attainment for all other pollutants. Modeling for PM10, NOx and CO shows that the project will not contribute to a violation of the NAAQS. OAQ conducted Hazardous Air Pollutant (HAPs) modeling and all HAP 8-hour maximum concentrations modeled below 0.5% of each Permissible Exposure Limit (PEL).

Part A

Pollutants Analyzed for Impact

The net change in emissions due to the project are listed in Table 1. The figures for each pollutant are the worst-case scenario for that pollutant.

Table 1
Change in Total Emissions in Tons per year due to Project

	PM10	SO2	NOx	CO	H2SO4	VOC	Lead
Modification Totals	501	7280	2444	730	82.2	36.7	0.84
4 AC Reductions	-935	-7572	-6413	-52	-75.3	-14.4	-0.25
Net Project Emissions	-235	-292	-3969	679	6.9	22.3	0.59
De Minimus Levels	15	40	40	100	7	25	0.6

For this new source's PSD permit, no modeling was performed for pollutants that did not have de minimus increases in emissions, namely NOx, H2SO4, Lead and VOC's.

Ispat performed modeling for SO2, CO and PM10 that was confirmed by IDEM, which demonstrated that no air quality standard violation would result in the non-attainment area. OAQ conducted Hazardous Air Pollutant (HAPs) modeling and all HAP 8-hour maximum concentrations modeled below 0.5% of each Permissible Exposure Limit (PEL).

Model Description

The Office of Air Quality review used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated April 10, 2000 to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W "Guideline on Air Quality Models". The model also utilized the Schulman-Scire algorithm to account for building downwash effects. Stacks associated with the proposed merchant power facility are below the Good Engineering Practice (GEP) formula for stack heights. This indicates that wind flow over and around surrounding buildings can influence the dispersion of pollutant coming from the stacks. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. These aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

Class I Areas are federally designated areas such as wildlife areas and selected National Parks which are more sensitive to pollutant impacts. Additional modeling for the source's impact on general growth, soils, vegetation and visibility in the impact area with emphasis on any Class I areas was not performed. This is due to the lack of any pollutant with de minimus emission levels exceeding significant impact, and no Class I areas that exist within 100 kilometers of the project.

Part B
Modeling for National Ambient Air Quality Standards

The impact of the project on Carbon Monoxide levels was determined by running ISCST with 5 years of meteorological data. This data utilised surface readings from the BPAmoco tower in Lake County. This modeling showed that no significant impact would occur for CO so no further modeling was performed for this pollutant. For a PSD source in an attainment area, a source with a non-significant impact will also not contribute to a violation of a standard for that pollutant.

Table 2
CO Modeling Results

Pollutant	Time Period	Project's Impact	Year	UTM X Easting	UTM Y Northing	Significant Impact
CO	1-Hour	96.7	1995	4614.8	464.1	2000
CO	8-Hour	43.6	1995	4615.2	464.5	500

PM10

Level II modeling was performed for PM10. Level II modeling is a simulation of only the project changes. The ISCST results that were run with the 1995 meteorology were not above Level II significance values for each time period (as shown below in Table 3) so no Level III modeling was performed.

Table 3
PM10 Level II Modeling Results

Time Period	Project's Impact (Ug/m3)	UTM X Easting	UTM Y Northing	Level II Significance (Ug/m3)
Annual	0.0	ALL RECEPTORS		5
24-Hour	7.0	464100	4614800	10

SO2

The ISCST results that were run with the 1995 meteorology were not above Level II significance values for the annual time period (as shown below in Table 4) so no Level III modeling was performed for that averaging period. Level III modeling was performed for SO2 3 and 24-hour time averages with the highest second-high results given in Table 4. The Lake County SIP inventory was modeled for each SIP receptor. The ISCST results that were run with the 1991-1995 meteorology were not above NAAQS for the annual and 3-hour averaging periods. (as shown in Table 5)

Table 4
SO2 Level II Modeling Results

Time Period	Project's Impact (Ug/m3)	UTM X Easting	UTM Y Northing	Level II Significance (Ug/m3)
Annual	0.0	ALL RECEPTORS		3

Table 5
SO2 Level III Modeling Results

Time Period	Peak Impact (Ug/m3)	UTM X Easting	UTM Y Northing	Background (Ug/m3)	Total (Ug/m3)	NAAQS (Ug/m3)
24-Hour	481	464100	4614800	12.9	493.9	365
3-Hour	1086	466200	4609800	14.0	1102	1300

Sixteen receptors were over the 24-hour standard. The project's contributions to each are listed in Table 6.

Table 6
SO2 Receptors over the 24-hour standard

UTM X Easting	UTM Y Northing	Modeled (Ug/m3)	Monitor (Ug/m3)	Total (ug/m3)	Standard (ug/m3)	Excess over Standard	Ispat Contribution	Date YR/MM/DD
457300	4615600	364.6	10.6	375.2	365	10.2	5.6	91/08/06
460400	4613200	492.0	12.3	504.3	365	139.3	0.0	91/11/03
460500	4613200	478.8	12.3	490.1	365	125.1	0.0	91/11/03
460600	4613300	359.3	12.3	371.6	365	6.6	0.0	91/11/03
466200	4610000	468.3	10.2	478.5	365	113.5	0.0	91/11/14
466300	4609900	394.5	12.3	406.8	365	41.8	0.0	91/11/03
457200	4615600	361.1	9.5	370.6	365	5.6	1.2	92/09/24
460400	4613600	353.6	12.6	366.2	365	6.2	0.0	92/01/12
465900	4609700	453.8	8.8	461.6	365	96.6	0.0	93/02/11
466000	4610000	371.5	9.9	380.4	365	15.4	0.0	93/05/07
466200	4609800	373.6	14.2	387.8	365	22.8	0.0	93/08/01
466300	4609700	454.1	10.4	464.5	365	99.5	0.0	93/09/10
466200	4610100	396.0	13.1	409.1	365	44.1	0.0	94/12/01
460500	4613100	429.3	15.5	444.8	365	79.8	0.0	95/01/22
460600	4613100	403.8	15.5	419.3	365	54.3	0.0	95/01/22
466100	4610100	373.7	11.9	385.6	365	20.6	0.0	95/07/12

Culpability runs were performed to determine the projects impact on these days. The project produces small contributions in comparison to larger violations of the standard. Ispat's largest contribution is only 1.5% of the total SO2 level. SO2 monitoring values were obtained by taking the average of the monitors in Lake County that have data available for all of the last three years. For average calculations the 24-hour readings were taken from the highest second-highest from each monitor and the annual readings taken were the highest annual reading. No receptors are modeled above the

standard due to the project.

Part C

Hazardous Air Pollutant Analysis and Results

OAQ presently requests data concerning the emission of 188 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic. The modeled emissions for each HAP are the total emissions, based maximum hourly emissions, for a conservative assumption.

OAQ performed HAP modeling using the ISCST3 model for all HAPs. Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA). In Table 7 below, the results of the HAP analysis with the emission rates, modeled concentrations and the percentages of the PEL for each HAP are listed. All HAPs concentrations were modeled below 0.5% of their respective PELs. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

Table 7
Hazardous Air Pollutant Modeling

Hazardous Air Pollutant	Plantwide Emissions Tons/Year	8-Hour Concentrations	PEL (Ug/m3)	Percent of PEL
Benzene	0.56	0.0756	3,200	.000024
Napthalene	0.38	0.0513	50,000	.000001
Phenol	0.08	0.0108	19,000	.0000005
Toluene	0.56	0.0756	750,000	.0000001
Antimony	0.026	0.0035	500	.000007
Arsenic	0.263	0.0355	10	.00035
Beryllium	0.004	0.0005	2	.00025
Cadmium	0.036	0.0048	5	.001
Chromium	0.128	0.0173	500	.000035
Lead	0.59	0.0796	50	.0016
Manganese	0.061	0.0082	5,000	.000002
Mercury	0.361	0.0487	100	.00048
Nickel	0.118	0.0148	1,000	.00001
Phosphorous	2.837	0.383	100	.38
Selenium	0.065	0.0088	200	.0044

Conclusion

This modeling shows that the project will not contribute to any exceedence in the PM10 or SO2 non-attainment areas, and that no adverse health impacts would be expected from the project.